

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

SCOTT, Roderick John

Appl. No. To be assigned

Filed: Herewith

For: **Modified Plants**

Art Unit: To be assigned

Examiner: To be assigned

Atty. Docket: 0623.1160001/LBB/GLL

**Preliminary Amendment**

Commissioner for Patents  
Washington, D.C. 20231

Sir:

In advance of substantive examination in the above identified matter, please amend the application as follows. This amendment is provided in the following format:

- (A) A clean version of each replacement paragraph/section/claim along with clear instructions for entry;
- (B) Starting on a separate page, appropriate remarks and arguments. *See* 37 C.F.R. § 1.121 and MPEP § 714; and
- (C) Starting on a separate page, a marked-up version entitled: “Version with markings to show changes made.”

***In the Specification:***

Please amend the specification as follows:

At page 12, prior to the first line of the paragraph appearing at lines 21-26, please insert the following header:

BRIEF SUMMARY OF THE INVENTION

At page 15, prior to the first line of the paragraph appearing at lines 1-10, please insert the following header:

DETAILED DESCRIPTION OF THE INVENTION

At page 22, prior to the first line of the paragraph appearing at lines 12-19, please insert the following header:

BRIEF SUMMARY OF THE DRAWINGS

At page 24, prior to the first line of the paragraph appearing at lines 26-28, please insert the following header:

EXAMPLES

At page 29, please substitute the paragraph appearing at lines 24-27, with the following paragraph:

5' CCGAATTCTTCAAGCAAAAGAATCTTTGTGGGAG 3' AGL5F (SEQ ID NO:1)

EcoRI

5' CGGTACCTATAAGCCCTAGCTGAAGTATAAACAC 3' AGL5R (SEQ ID NO:2)

KpnI

At page 30, please substitute the paragraph appearing at lines 5-8, with the following paragraph:

5' CCGAATTCAAGCTTCTTAAGAATTATAGTAGCACTTG 3' AP3F (SEQ ID NO:3)

EcoRI

5' GGGTACCTTCTCTCTTTGTTTAATCTTTTTGTTGAAGAG 3' AP3R (SEQ ID NO:4)

KpnI

At page 30, please substitute the paragraph appearing at lines 25-28, with the following paragraph:

5' ACTCGAGATTTTGAAAATGGTGGAAAATGGGGC 3' MET1F (SEQ ID NO:5)

XhoI

5' ACCCGGGTGGTTATCTAGGGTTGGTGTGAGGAG 3' MET1R (SEQ ID NO:6)

SmaI

After the claims, please insert the following paragraph:

## **Modified Plants**

### **ABSTRACT**

A method for controlling endosperm size and development in plants. The method employs nucleic acid constructs encoding proteins involved in genomic imprinting, in the production of transgenic plants. The nucleic acid constructs can be used in the production of transgenic plants to affect interspecific hybridisation.

Please insert the sequence listing at the end of the application.

***In the Claims:***

At page 48 and before claim 1, please delete the header appearing at line 1 and substitute therefor the following header:

WHAT IS CLAIMED IS:

Please substitute pending claims 4, 6, 7, 11-16, 18, 27 and 30-34 with the following claims 4, 6, 7, 11-16, 18, 27 and 30-34:

4. (Once amended) A method as claimed in claim 1 wherein the nucleic acid molecule comprises one or more sequences whose expression or transcription product(s) is/are associated with the formation and/or maintenance of genomic imprints.
6. (Once amended) A method as claimed in claim 1 wherein the nucleic acid molecule includes a sequence of the FIE gene or FIS genes.
7. (Once amended) A method as claimed in claim 1 wherein the nucleic acid molecule comprises one or more sequences whose expression or transcription product(s) is/are capable of altering the degree of methylation of nucleic acid.
11. (Once amended) A method as claimed in claim 8 wherein the one or more regulatory sequences comprise a promoter sequence, or regulatory sequences or fragments therefrom.

12. (Once amended) A method as claimed in claim 11 wherein the promoter is derived from the *Arabidopsis* AGL5 gene, the *Petunia* FBP7, the *Petunia* FBP11 gene, the *Arabidopsis* BEL1 gene, the *Arabidopsis* MEDEA (*FIS1*) gene, the *Arabidopsis* FIS 2 gene, the *Arabidopsis* FIE (*FIS 3*) gene, orthologs/homologues of any of these genes from other species or any promoter that drives expression that is restricted to cells within the female reproductive organs that contribute to the female germ line, preferably promoters from gynoecium-specific genes that are first expressed during early gynoecium development, preferably before the differentiation of individual ovules, and which maintain their expression until ovule differentiation is complete.

13. (Once amended) A method as claimed in claim 11 wherein the promoter is derived from the *Arabidopsis* gene APETALA3, the *Arabidopsis* PISTILATTA gene, the *Arabidopsis* E2 gene, the *Arabidopsis* APG gene, homologues/orthologs of these genes from other species or any promoter that drives expression that is restricted to cells within the male reproductive organs that contribute to the male germ line, preferably promoters from stamen-specific genes that are first expressed during early stamen development, preferably before the differentiation of individual microsporocytes, and which maintain their expression until stamen differentiation is complete.

14. (Once amended) A method as claimed in claim 8 wherein the size of the endosperm is altered.

15. (Once amended) A method as claimed in claim 8 wherein development of the endosperm is altered.
16. (Once amended) A method as claimed in claim 8 wherein the degree of nucleic acid methylation is increased.
18. (Once amended) A method as claimed in claim 8 wherein the degree of nucleic acid methylation is decreased.
27. (Once amended) The use as claimed in claim 25 wherein the barrier results from failure in endosperm development.
30. (Once amended) The use as claimed in claim 28 wherein the barrier results from failure in endosperm development.
31. (Once amended) A nucleic acid molecule as claimed in claim 23 modified by any one or more of the features defined in claim 12.
32. (Once amended) A nucleic acid molecule as claimed in claim 23 which is in the form of a vector.
33. (Once amended) A plant cell including nucleic acid as defined in claim 23.

*(The following names are those appearing in the original manuscript.)*

***Remarks***

Applicant has inserted the priority information on the front page of the application as required by 37 C.F.R. § 1.78. By the foregoing amendments, Applicant has also amended the international application to place the specification and claims into proper format for U.S. practice, and to insert the abstract (which contains the same text as that appearing on the face page of the international application as published) into the appropriate location in the specification. In addition, claims 4, 6, 7, 11-16, 18, 27 and 30-34 were amended to remove the multiple dependencies. Hence, no new matter has been added by the foregoing amendments, and entry and consideration of the same are respectfully requested.

It is not believed that extensions of time or fees for net addition of claims are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required therefor (including fees for net addition of claims) are hereby authorized to be charged to our Deposit Account No. 19-0036.

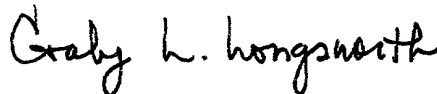


SCOTT, Roderick John  
Appl. No. To be assigned

Entry of the foregoing amendments and early consideration of the present application  
are earnestly solicited.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



Gaby L. Longsworth  
Agent for Applicants  
Registration No. 47,756

Date: January 30, 2002

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**Version with markings to show changes made**

***In the specification***

At page 1, after the title, the following was inserted:

**CROSS-REFERENCE TO RELATED APPLICATIONS**

This application is a continuation of International Application No. PCT/GB00/02953, internationally filed July 31, 2000, which was published in English, and claims priority to Great Britain Application No. 9918061.4, filed July 30, 1999, the disclosures of both of which are incorporated in their entirety by reference hereto.

**BACKGROUND OF THE INVENTION**

***Field of the Invention***

Also, at page 1, after the first full paragraph, the following header was inserted:

***Related Art***

At page 12, prior to the first line of the paragraph appearing at lines 21-26, the following header was inserted:

**BRIEF SUMMARY OF THE INVENTION**

At page 15, prior to the first line of the paragraph appearing at lines 1-10, the following header was inserted:

## DETAILED DESCRIPTION OF THE INVENTION

At page 22, prior to the first line of the paragraph appearing at lines 12-19, the following header was inserted:

### BRIEF SUMMARY OF THE DRAWINGS

At page 24, prior to the first line of the paragraph appearing at lines 26-28, the following header was inserted:

### EXAMPLES

At page 29, the paragraph appearing at lines 24-27, was substituted with the following paragraph:

5' CCGAATTCTTCAAGCAAAAGAATCTTTGTGGGAG 3' AGL5F (SEQ ID NO:1)

EcoRI

5' CGGTACCTATAAGCCCTAGCTGAAGTATAAACAC 3' AGL5R (SEQ ID NO:2)

KpnI

At page 30, the paragraph appearing at lines 5-8, was substituted with the following paragraph:

5' CCGAATTCAAGCTTCTTAAGAATTATAGTAGCACTTG 3' AP3F (SEQ ID NO:3)

EcoRI

5' GGGTACCTTCTCTCTTTGTTTAATCTTTTGTGAAGAG 3' AP3R (SEQ ID NO:4)

KpnI

At page 30, the paragraph appearing at lines 25-28, was substituted with the following paragraph:

5' ACTCGAGATTTTGAAAATGGTGGAAAATGGGGC 3' MET1F (SEQ ID NO:5)

XhoI

5' ACCCGGGTGGTTATCTAGGGTTGGTGTGAGGAG 3' MET1R (SEQ ID NO:6)

SmaI

After the claims (at new page 54), the following paragraph was inserted:

### **Modified Plants**

#### **ABSTRACT**

A method for controlling endosperm size and development in plants. The method employs nucleic acid constructs encoding proteins involved in genomic imprinting, in the production of transgenic plants. The nucleic acid constructs can be used in the production of transgenic plants to affect interspecific hybridisation.

The sequence listing was inserted at the end of the application.

#### ***In the Claims:***

At page 48 and before claim 1, the header appearing at line 1 was deleted and substituted with the following header:

WHAT IS CLAIMED IS:

Pending claims 4, 6, 7, 11-16, 18, 27 and 30-34 were rewritten as follows:

4. (Once amended) A method as claimed in [any one of claims 1 to 3] claim 1 wherein the nucleic acid molecule comprises one or more sequences whose expression or transcription product(s) is/are associated with the formation and/or maintenance of genomic imprints.

6. (Once amended) A method as claimed in [any one of claims 1 to 5] claim 1 wherein the nucleic acid molecule includes a sequence of the FIE gene or FIS genes.

7. (Once amended) A method as claimed in [any one of claims 1 to 6] claim 1 wherein the nucleic acid molecule comprises one or more sequences whose expression or transcription product(s) is/are capable of altering the degree of methylation of nucleic acid.

11. (Once amended) A method as claimed in [any one of claims 1 to 10] claim 8 wherein the one or more regulatory sequences comprise a promoter sequence, or regulatory sequences or fragments therefrom.

12. (Once amended) A method as claimed in [any one of claims 1, 2, 4 to 9, or 11] claim 11 wherein the promoter is derived from the *Arabidopsis* AGL5 gene, the *Petunia* FBP7, the *Petunia* FBP11 gene, the *Arabidopsis* BEL1 gene, the *Arabidopsis* MEDEA (*FIS1*)

gene, the *Arabidopsis FIS 2* gene, the *Arabidopsis FIE (FIS 3)* gene, orthologs/homologues of any of these genes from other species or any promoter that drives expression that is restricted to cells within the female reproductive organs that contribute to the female germ line, preferably promoters from gynoecium-specific genes that are first expressed during early gynoecium development, preferably before the differentiation of individual ovules, and which maintain their expression until ovule differentiation is complete.

13. (Once amended) A method as claimed in [any one of claims 1, 3, 4 to 8, 10 or 11] claim 11 wherein the promoter is derived from the *Arabidopsis* gene *APETALA3*, the *Arabidopsis PISTILATTA* gene, the *Arabidopsis E2* gene, the *Arabidopsis APG* gene, homologues/orthologs of these genes from other species or any promoter that drives expression that is restricted to cells within the male reproductive organs that contribute to the male germ line, preferably promoters from stamen-specific genes that are first expressed during early stamen development, preferably before the differentiation of individual microsporocytes, and which maintain their expression until stamen differentiation is complete.

14. (Once amended) A method as claimed in [any one of claims 1 to 13] claim 8 wherein the size of the endosperm is altered.

15. (Once amended) A method as claimed in [any one of claims 1 to 13] claim 8 wherein development of the endosperm is altered.

16. (Once amended) A method as claimed in [any one of claims 7 to 15] claim 8 wherein the degree of nucleic acid methylation is increased.

18. (Once amended) A method as claimed in [any one of claims 7 to 15] claim 8 wherein the degree of nucleic acid methylation is decreased.

27. (Once amended) The use as claimed in claim 25 [or claim 26] wherein the barrier results from failure in endosperm development.

30. (Once amended) The use as claimed in claim 28 [or claim 29] wherein the barrier results from failure in endosperm development.

31. (Once amended) A nucleic acid molecule as claimed in claim 23 modified by any one or more of the features defined in [any one of claims 12 to 22] claim 12.

32. (Once amended) A nucleic acid molecule as claimed in [any one of claims 23 to 31] claim 23 which is in the form of a vector.

33. (Once amended) A plant cell including nucleic acid as defined in [any one of claims 23 to 32] claim 23.

34. (Once amended) A transgenic plant [( ) or parts thereof [such as propagating material) including] comprising nucleic acid as defined in [any one of claims 23 to 33] claim 23.

[illegible]